The Geomorphic, Cartographic, and Structural Reconstruction of the Golden Chersonese

An Investigation into Pre-13th Century Transpeninsular Waterways, Tectonic Displacements, and Submerged Emplacements in the Southern Malayan Interior

Domain:	Tectonic Geomorphology & Classical Cartography	**Geographic Focus:**	Titiwangsa-Besar-Ophir Triangle & Segamat
Context Anchor:	Ptolemaic Golden Chersonese & Mersing Fault	**Temporal Horizon:**	Pre-13th Century Catastrophic Shift

1. Introduction and Epistemological Framework

The historical geography of the southern Malay Peninsula—historically celebrated as the ***Aurea Chersonesus*** or Golden Chersonese—contains structural discrepancies between classical cartographic records and contemporary topography. Traditions preserved within regional historiography, notably synthesized in the legacy frameworks of the Hassan-Zainab archives, point to a configuration of river networks, interior emporia, and defensive fortifications that underwent radical transformation prior to the 13th century. This monograph provides a rigorous technical examination of the missing ancient valley enclosed by the southern termination of the Titiwangsa Range, the Besar Range in the southeast, and Mount Ophir (Ledang) in the west, alongside the structural mechanics of its hydrological disappearance.

2. The Transpeninsular Waterway Architecture

Classical maps, most notably those derived from Claudius Ptolemy's ***Geographia*** (2nd century CE), delineate riverine approaches across the Malayan landmass that defy simple modern coastline matching. Rather than circumnavigating the perilous southern maritime extremity via the Singapore Straits, ancient maritime and riverine trade utilized a continuous cross-peninsular water corridor.

$$W_{trans} = Q_{Muara} \longleftrightarrow Q_{Segamat} \longleftrightarrow Q_{Kapih} \longleftrightarrow Q_{Pahang}$$

This integrated corridor operated through a synchronized hydrological sequence:

- **Western Entry (Muara Sanctuary):** Marine vessels entered via the wide historical estuary of the Muar River (***Muara Sanctuary***), which possessed a significantly higher tidal prism and broader sediment accommodation space in antiquity.
- **Navigational Hub (Telok Peradong):** Traversing upstream along the Segamat River basin, commercial traffic converged upon ***Telok Peradong***, functioning as an interior navigating port and primary transshipment node.
- **The Watershed Crossing (Kapih River):** From the central basin, watercraft transitioned across the low-relief inland saddle into the ***Kapih River*** tributary network.
- **Eastern Exit (Malay Sea):** The system discharged eastward into the primary artery of the Pahang River, ultimately debouching into the Malay Sea (South China Sea).

3. Palandas and the Golden Emporium of Rantau Panjang

At the intersection of these interior riverine arteries stood ***Palandas*** (alternatively recorded as Palanda or modern Rantau Panjang within the Segamat district). In classical listings, Palandas is designated not merely as a settlement, but as an inland golden emporium where precious metals—sourced from auriferous upper-stream deposits along the regional ranges—were aggregated, smelted, and taxed.

> **Archival Note:** The topological positioning of Palandas required a stable hydrological regime where seasonal flooding did not disrupt storage vaults. Its subsequent disappearance from active medieval port lists coincides directly with major regional avulsions and tectonic subsidence.

4. Tectonic Mechanics and the Mersing Fault Zone

The catastrophic alteration of this ancient valley and its associated waterway is attributed to a major tectonic event along the ***Mersing Fault Zone*** occurring prior to the 13th century. The southern Malay Peninsula, while traditionally viewed as a stable core of Sundaland, is transected by deep-seated lineaments subject to intraplate stress reactivation.

Geologically, the region bounded by the Titiwangsa termination, the Besar Range, and Mount Ophir constitutes a complex tectonic graben or down-faulted block. Stress accumulation along the Mersing Lineament induced seismic slip and localized crustal subsidence. This event triggered:

- **Hydrological Avulsion:** The sudden breaching or tilting of river divides, severing the upper Kapih-Segamat hydraulic continuity and leaving an abandoned, sediment-choked paleovalley.
- **Basaltic Intrusions and Volcanism:** Secondary thermal and intrusive pulses associated with deep faulting generated extensive local basaltic flows (the ***Segamat Basalt*** formations), which capped and masked earlier sedimentary layers.

5. The Submergence of Batu Hampar Fort

A primary casualty of this pre-13th century tectonic crisis was the strategic fortification known in oral and written traditions as ***Kota Batu Hampar***. Built upon a foundational rock shelf within the active riverine and volcanic zone, the fort was subjected to catastrophic liquefaction, down-faulting, and subsequent burial beneath thick layers of weathering basalt and alluvial overburden.

Topographical Node	Classical / Ancient Role	Modern Geological & Geographic Correlate
Muara Sanctuary	Western maritime entry and estuary harbor	Muar River mouth / Straits of Malacca transition
Telok Peradong	Inland navigating port and customs post	Segamat River corridor basin
Palandas (Rantau Panjang)	Golden emporium and regional trade nexus	Interior Segamat lowland plains
Batu Hampar Fort	Strategic military and administrative stronghold	Submerged/buried structures within Segamat Basalt strata

6. Conclusion

The synthesis of Ptolemaic geography with local structural geology validates the narrative of the Hassan-Zainab legacy. The "missing" valley, the transpeninsular waterway, the emporium of Palandas, and the basalt-encased ruins of Batu Hampar Fort represent physical evidence of a profound landscape transformation driven by active intraplate tectonics along the Mersing Fault Zone prior to the 13th century.